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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/092,846 | 03/07/2002 | Beom-Wook Lee | 47769/DBP/Y35 | 9449 |

23363 7590 05/27/2004

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| EXAMINER |
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THORNTON, YVETTE C

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| ART UNIT | PAPER NUMBER |
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1752

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,846

Applicant(s)

LEE ET AL.

Examiner

Yvette C. Thornton

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,4 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,4 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This is written in reference to application number 10/092846 filed on March 7, 2002 and published as US 2003/0054285 A1 on March 20, 2003.

Response to Amendment

1. Claims 1-2 and 5-8 have been cancelled. Claims 3-4 and 9-11 are currently pending.

Specification

2. The amendment filed March 2, 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "but if R and R' are both O, then β is not O".

Applicant is required to cancel the new matter in the reply to this Office Action.

3. The abstract filed on March 2, 2004 is sufficient to overcome the specification objection set forth in the previous office action.

Terminal Disclaimer

4. The terminal disclaimer filed on March 2, 2004 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of U.S. Publication No. 2002/0143130 A1, now U.S. Patent Number 669951 B2 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Art Unit: 1752

5. The said Terminal Disclaimer is sufficient to overcome the double patenting rejection of record.

Claim Rejections - 35 USC § 112-1st paragraph

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 3-4 and 9-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The added material which is not supported by the original disclosure is as follows: "but if R and R' are both O, then β is not 0".

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

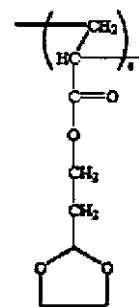
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 3-4 and 9-11 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Jung et al. (US 6482565 B1). Jung teaches a photoresist composition comprising (i) a

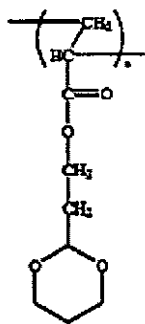
Art Unit: 1752

photoresist polymer, (ii) a photoresist crosslinker of formula 1, (iii) a photoacid generator and (iv) an organic solvent (c. 2, l. 45-50). The photoresist according to the taught invention may be a homopolymer of formula 1; however it is more preferable that the crosslinker is a copolymer of (i) the compound represented by formula 1; and (ii) one or more compounds selected from the group consisting of acrylate, methacrylate and maleic anhydride as the second comonomer (c. 3, l. 46-53; see formula 3 and 4; c. 4, l. 65-c. 5, l. 1)). Jung



exemplifies in example 9 a crosslinking homopolymer of chemical formula 12:

(cl. 11, l. 1-15). Example 10 exemplifies the synthesis of a homopolymer of chemical formula



13:

(c. 11, l. 19-40). Although not exemplified, one of ordinary skill in the art

would readily envisage a composition comprising a homopolymer of either formula 12 or 13, a photoacid generator, an organic solvent and a photoresist polymer. Furthermore, one of ordinary would also readily envisage a composition wherein the exemplified crosslinker of formula 12 or 13 further comprises an acrylate or a methacrylate comonomer since Jung teaches that this combination is more preferable. It is the examiner's position that an

acrylate or methacrylate monomer unit would meet the limitations of claimed monomer unit “d” of instant claims 3-4 and 9-10 wherein R16 is a single bond and R17 is COOH. See also c. 6, l. 5-45 and ex. 11.

Response to Arguments

10. The cancellation of instant claims 1-2 and 5-8 is sufficient to overcome the prior art rejection over Zey (US 4,076,727 A) and Aoai (US 6,042,991 A).

11. Applicant's arguments, with respect to the prior art reference of Jung (US6,482,565 B1) have been fully considered but are not persuasive. The examiner is of the position in claimed formula (5) when R14 is CO (i.e., α and $\beta=0$); R15 is OH; R16 is a single bond; and R17 is COOH, repeating units “c” and “d” are both (meth)acrylate monomers. Therefore, a copolymer of formula 12 or 13 of Jung and a (meth)acrylate monomer, assuming a 1:1 ratio, would clearly meet the limitations of the instant claims wherein repeating unit “a” is 50% and units “c”+“d” is 50%.

12. The rejection is maintained for the above reasons.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

14. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened

Art Unit: 1752

statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action.

In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 571-272-1336. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:30 pm.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff, can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Yvette Clarke Thornton
Patent Examiner
Art Unit 1752

yct
May 24, 2004